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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,883	04/13/2004	Kenneth Merdan	1001.1748101	4001

28075 7590 06/23/2010

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EXAMINER	
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ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
06/23/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/822,883
Filing Date: April 13, 2004
Appellant(s): MERDAN ET AL.

Glenn M. Seager
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For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/22/2010 appealing from the Office action mailed 8/10/2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1, 5-8 & 11-19 are rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being

maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,855,802	Acciai et al.	1-1999
6,695,920	Pacetti et al.	2-2004
20030234243	McCoy	12-2003
6,197,047	Kranz	3-2001
6,086,204	Magnante	7-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 7-8, 11-17 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acciai et al. (USPN 5,855,802) in view of Pacetti et al. (USPN 6,695,920), McCoy (USPAP 2003/0234243 A1) and Applicant's Admitted Prior Art (AAPA).

Acciai et al. discloses a method and apparatus for forming a tubular article having a perforated annular wall, such as a surgical stent. Figure 3 shows a laser (40), a fiber optic (44), a beam splitter (42) and an optical guide (46). Note that the laser beam moves partially in a horizontal direction in the fiber optic and horizontally in the optical guide. The tubular member (32) is mounted in a chuck (34). The laser beams are focused by focusing mirrors (56 & 58) mounted at 45° (tuning mirror). The apparatus is supported by a precision table (66) and a table (68). The tubular member is rotated by a rotating means (36), powered by a rotary drive motor (38). The tubular member is moved in a horizontal (translational) direction by means of a linear drive motor (70). The laser beams (60 & 62) cut the tubular member, in this case a stent.

Acciai et al. does not teach all the elements mounted to one table, the coupling of the linear and rotary motors, the presence of guides, the workpiece below the motor(s), the direct cutting using the laser, or the use of a coolant.

Pacetti et al. discloses a mandrel apparatus for supporting a stent. The stent is connected to a rotational motor (24) and another motor (28), which provides linear directional motion (back and forth along a rail). In addition, gears members (22) (guides) and a rail (30) provide guide members.

It would have been obvious to one of ordinary skill in the art at the time of the invention to couple the motor(s) and provide guides (gear members for stent support and rails), as taught by Pacetti et al. in the Acciai et al. system because coupling the motors minimizes manufacturing real estate and guides support components and provides articles for motion.

McCoy discloses a multi-axis laser apparatus for the fine cutting of tubing (i.e. the making of stents). Tubes are affixed under a laser and positioned using a computer-generated signal in order to move the tube in a very intricate and precise pattern around a linear and rotary axis. A water system is incorporated in the apparatus to remove **debris falling** into the interior of the cut tube and to push discrete portions of the cut tube (or stents) into a parts catcher to separate the stent from the uncut portion of the tube. The tubing is feed by reciprocal relative movement through a cutting block by a collet relative to the clamp, which positions a finite length of the tubing beneath the beam. The pattern cut is controlled by movement of the tubing relative to the beam simultaneously along an X (length) and Y axis (rotary) controlled by a computerized encoder as part of a CNC positioning equipment. A computer software controlled rotary and linear movement subassembly apparatus. The cutting of the tubing is conducted on an x-axis table, which has a combination of rotary (y-axis) and linear (x-axis) movements of the tubing relative to the cutting laser beam. (abstract, figures, 0017, 0019, 0025, 0028, 0033)

McCoy discloses:

The present invention provides an improved system for producing metal stents with a fine precision structure cut from a small diameter, thin-walled, cylindrical tube. The tubes are fixtured under a laser and positioned utilizing a computer generated signal to move the tube in a very intricate and precise pattern around a linear and rotary axis. The stent is cut from small diameter tubing held between a collet and clamp, one of which is periodically opened and the other reciprocably moved to position a small length of tubing, sequentially beneath the cutting head. A water system is incorporated in the apparatus to remove debris falling into the interior of the cut tube and to push discrete portions of the cut tube (or stents) into a parts catcher to separate the stent from the uncut portion of the tube. (abstract)

...a gas jet stream substantially surrounds the laser beam where the beam impinges on the working outer tube surface to aid in cutting said tubing. (claim 7)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser directly and use a coolant as taught by McCoy in the Acciai et al. apparatus and process because direct laser cutting while enhance efficiency and the coolant would yield greater precision because the debris would be removed during the laser machining.

It is the position of the examiner that it would have been obvious to one of ordinary skill in the art at the time of the invention to place the stent and its associated "machining" debris at the bottom of the apparatus because this would negate contamination and possible damage to apparatus parts. For example this configuration would prevent chips from falling into motor windings and so forth.

Making elements integral was held to have been obvious. In re Wolfe 116 USPQ 443. Reversal of parts was held to have been obvious. In re Gazda 104 USPQ 400. Rearrangement of parts was held to have been obvious. In re Japikse 86 USPQ 70.

AAPA includes a description of a laser/water jet hybrid made by SYNOVA Inc. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the SYNOVA hybrid laser/water system because it would ensure precision machining of the stent by removing cutting debris.

Claims 1, 5, 7-8, 11-17 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acciai et al. (USPN 5,855,802) in view of Pacetti et al. (USPN 6,695,920), McCoy (USPAP 2003/0234243 A1) and Kranz (USPN 6,197,047).

Acciai et al. discloses a method and apparatus for forming a tubular article having a perforated annular wall, such as a surgical stent. Figure 3 shows a laser (40), a fiber optic (44), a beam splitter (42) and an optical guide (46). Note that the laser beam moves partially in a horizontal direction in the fiber optic and horizontally in the optical guide. The tubular member (32) is mounted in a chuck (34). The laser beams are focused by focusing mirrors (56 & 58) mounted at 45° (tuning mirror). The apparatus is supported by a precision table (66) and a table (68). The tubular member is rotated by a rotating means (36), powered by a rotary drive motor (38). The tubular member is moved in a horizontal (translational) direction by means of a linear drive motor (70). The laser beams (60 & 62) cut the tubular member, in this case a stent.

Acciai et al. does not teach all the elements mounted to one table, the coupling of the linear and rotary motors, the presence of guides, the workpiece below the motor(s), the direct cutting using the laser, or the use of a coolant.

Pacetti et al. discloses a mandrel apparatus for supporting a stent. The stent is connected to a rotational motor (24) and another motor (28), which provides linear directional motion (back and forth along a rail). In addition, gears members (22) (guides) and a rail (30) provide guide members.

It would have been obvious to one of ordinary skill in the art at the time of the invention to couple the motor(s) and provide guides (gear members for stent support and rails), as taught by Pacetti et al. in the Acciai et al. system because coupling the motors minimizes manufacturing real estate and guides support components and provides articles for motion.

McCoy discloses a multi-axis laser apparatus for the fine cutting of tubing (i.e. the making of stents). Tubes are affixed under a laser and positioned using a computer-generated signal in order to move the tube in a very intricate and precise pattern around a linear and rotary axis. A water system is incorporated in the apparatus to remove **debris falling** into the interior of the cut tube and to push discrete portions of the cut tube (or stents) into a parts catcher to separate the stent from the uncut portion of the tube. The tubing is feed by reciprocal relative movement through a cutting block by a collet relative to the clamp, which positions a finite length of the tubing beneath the beam. The pattern cut is controlled by movement of the tubing relative to the beam simultaneously along an X (length) and Y axis (rotary) controlled by a computerized

encoder as part of a CNC positioning equipment. A computer software controlled rotary and linear movement subassembly apparatus. The cutting of the tubing is conducted on an x-axis table, which has a combination of rotary (y-axis) and linear (x-axis) movements of the tubing relative to the cutting laser beam. (abstract, figures, 0017, 0019, 0025, 0028, 0033)

McCoy discloses:

> The present invention provides an improved system for producing metal stents with a fine precision structure cut from a small diameter, thin-walled, cylindrical tube. The tubes are fixtured under a laser and positioned utilizing a computer generated signal to move the tube in a very intricate and precise pattern around a linear and rotary axis. The stent is cut from small diameter tubing held between a collet and clamp, one of which is periodically opened and the other reciprocably moved to position a small length of tubing, sequentially beneath the cutting head. A water system is incorporated in the apparatus to remove debris falling into the interior of the cut tube and to push discrete portions of the cut tube (or stents) into a parts catcher to separate the stent from the uncut portion of the tube. (abstract)

> …a gas jet stream substantially surrounds the laser beam where the beam impinges on the working outer tube surface to aid in cutting said tubing. (claim 7)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser directly and use a coolant as taught by McCoy in the Acciai et al. apparatus and process because direct laser cutting while enhance efficiency and the coolant would yield greater precision because the debris would be removed during the laser machining.

It is the position of the examiner that it would have been obvious to one of ordinary skill in the art at the time of the invention to place the stent and its associated "machining" debris at the bottom of the apparatus because this would negate contamination and possible damage to apparatus parts. For example this configuration would prevent chips from falling into motor windings and so forth.

Making elements integral was held to have been obvious. In re Wolfe 116 USPQ 443. Reversal of parts was held to have been obvious. In re Gazda 104 USPQ 400. Rearrangement of parts was held to have been obvious. In re Japikse 86 USPQ 70.

Acciai et al., Pacetti et al. and McCoy teach a laser and the use of water, but a water laser is not specifically taught.

Kranz discloses:

A stent…

In a preferred embodiment of a stent according to the invention the partition lines are of a width substantially corresponding to that of a clean incision when the surface is severed by means of a cutting beam, e.g. **a cutting jet of water preferably a laser beam.** Narrow partition lines give the non-expanded stent particularly high stability. (col. 2, lines 29-34)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a water/laser cutting jet as taught by Kranz in the Acciai et al. Pacetti et al. and McCoy apparatus and process because it would ensure precision machining of the stent by removing cutting debris.

Claims 6 & 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acciai et al., Pacetti et al., McCoy and (AAPA or Kranz), as stated above and further in view of Magnante (USPN 6,086,204)

Acciai et al., Pacetti et al. and McCoy teach a table/base, however, a granite base is not taught.

Magnante discloses:

…modified surfaces on contact lenses … three dimensional contour cutting, laser ablation… (abstract)

…Correcting Surfaces on Lenses…
… Since the machine must be completely free of both internal and external vibrations, both lathe 30 and x-z slides 32 are secured to a pneumatically isolated table top 35 which rests on **granite base** 36. (col. 15, lines 44-45, 67 & col. 16, lines 25-27)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a granite base as taught by Magnante in the Acciai et al. Pacetti et al. and McCoy apparatus and process because it would ensure precision machining of the stent.

The type of materials chosen is a choice in design and substitution of known equivalent structures (table for granite) has been held obvious. In re Kuhle 188 USPQ (CCPA 1975), In re Ruff 118 USPQ 343 (CCPA 1958).

(10) Response to Argument

A. Appellant argues that Claims 1, 5, 7-8, 11-17 & 19 are patentable over Acciai et al. in view of Pacetti et al., McCoy and Applicant's admitted prior art under 35 U.S.C. 103(a).

Appellant argues that Acciai does not teach a laser cutting system. The examiner respectfully notes that Acciai teaches a laser exposure system and McCoy teaches a cutting laser. In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellant argues that if the laser in Acciai were adapted to include a laser cutting system the portions to be retained would be removed. The examiner respectfully submits that Acciai is directed to the making of a stent and McCoy is directed to laser cutting of stents and thus if the Acciai segments to be removed through a series of exposure (laser) and chemical etching steps were removed with a cutting laser of McCoy, a proper stent would be produced, that is, the correct portions (segments) would be removed.

Appellant argues that Pacetti et al. does not teach a rotary motor coupled to a linear motor wherein the rotary motor is positioned below the linear motor. The examiner respectfully notes that Pacetti et al. teaches a rotary motor (24) and a motor with linear motion (28); with respect to positioning of the motors, it is the position of the

examiner that it would have been obvious to one of ordinary skill in the art at the time of the invention to place the stent and its associated "machining" debris at the bottom of the apparatus because this would negate contamination and possible damage to apparatus parts. For example this configuration would prevent chips from falling into motor windings and so forth. Thus the linear motor would positioned above the rotary motor which is directly attached to the stent. Reversal of parts was held to have been obvious. In re Gazda 104 USPQ 400. Rearrangement of parts was held to have been obvious. In re Japikse 86 USPQ 70.

Appellant argues that neither Acciai nor Pacetti explicitly place a rotary motor below a linear motor. The examiner respectfully notes that Acciai teaches a linear motor and a rotary motor and Pacetti teaches the coupling of a rotational motor and another motor having linear motion. Acciai teaches a rotational motor (38) mounted slight above a linear motor (70), however, Acciai also states:

> Although the present invention is described in terms of a preferred exemplary embodiment, those skilled in art will recognize that ***changes in the mounting arrangement*** of the tubular member, and relative translation of the laser beam with respect to the tubular member, may be made without departing from the spirit of the invention. (col. 5, lines 3-8)

Pacetti teaches a rotary motor and another motor which provides linear directional motion (back and forth along a rail) (col. 3, lines 5-12). Additionally, Pacetti discloses:

> While particular ***embodiments*** of the present invention have been shown and described, it will be obvious to those skilled in the art that ***changes and modifications*** can be made without departing from this invention in its broader aspects. (col. 7, lines 7-10)

Furthermore, it has been long held that the rearranging of parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70. Reversal of parts was held to have been obvious. In re Gazda 104 USPQ 400

Appellant argues that Pacetti does not teach that the workpiece (10) is coupled to a rotary motor (24) or that the gears (22) are coupled to workpiece (10) as recited in claim 1. The examiner respectfully notes that gears are not a claim limitation. Furthermore, Pacetti teaches a rotary motor (24) coupled to the workpiece (10), as shown in figure 2A below:

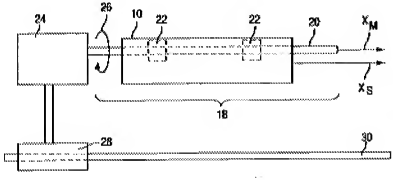

FIGURE 2A

The workpiece (10) is coupled (to pair, join, link or to bring into close proximity as to permit mutual influence or combined effect) to the rotary motor (24) through a mandrel link (20). The workpiece is coupled, in close proximity or linked to the motor by mandrel link (20). Additionally, it can be seen from figure 2A that the rotary motor (24) is coupled to the motor (28) which provides linear motion.

Appellant argues that if the imprecise drive system of Pacetti was employed in the Acciai precise system the result would render the system of Acciai unsuitable for precision fabrication and would prevent the exposure of the stent by the laser.

References do not need to be physically combinable. In re Nievelt 179 USPQ 224 (CCPA 1973).

Appellant argues that Acciai et al. and Pacetti et al. do not appear to be able to precisely position the stent. The examiner respectfully notes that precise position is not a claim limitation, but rather positioning. In response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., precision positioning) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant argues that Pacetti does not provide the missing laser cutting system. The examiner respectfully notes that McCoy discloses a laser cutting system that uses water. In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellant argues that McCoy does not teach a coolant as required by claim 1. The examiner respectfully notes that coolant is not a claim limitation. Claim 1 only requires a laser/water jet hybrid. This is taught by Applicant's admitted prior art, that is, a description of a laser/water jet hybrid made by SYNOVA Inc.

Appellant argues that McCoy does not teach all the elements mounted on one table. In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

B. Appellant argues that Claims 1, 5, 7-8, 11-17 & 19 are patentable over Acciai et al. in view of Pacetti et al., McCoy and Kranz under 35 U.S.C. 103(a).

Appellant argues that Kranz does not teach a laser/water jet. The examiner respectfully notes that Kranz discloses:

> In a preferred embodiment of a stent according to the invention the partition lines are of a width substantially corresponding to that of a clean incision when the surface is severed by means of a cutting beam, e.g. a cutting jet of water preferably a laser beam. (col. 29-34)

Thus Kranz discloses a water jet and a laser beam may be used in the cutting of a stent.

C. Appellant argues that Claims 6 & 18 are patentable over Acciai et al. in view of Pacetti et al., McCoy and Applicant's admitted prior art or Kranz and further in view of Magnante under 35 U.S.C. 103(a).

Appellant argues that Magnante discloses a granite base which does not appear in claims 1 and 13 and thus does not overcome the deficiencies of the references with

respect to those claims. the examiner respectfully notes that Magnante is directed to dependent claims 6 & 8.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/M. Alexandra Elve/

Primary Examiner, Art Unit 3742

Conferees:

/Henry C. Yuen/

Special Programs Examiner, TC 3700

/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742